

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Garbuzov et al. Art Unit : 2828  
Serial No. : 10/778,019 Examiner : Dung T. Nguyen  
Filed : February 13, 2004 Conf. No. : 4607  
Title : HIGH POWER SEMICONDUCTOR LASER DIODE

**Mail Stop Amendment**  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

SUPPLEMENTAL DECLARATION BY ASSIGNEE PURSUANT TO 37 C.F.R. §1.175

The undersigned, as authorized representative of the assignee of the entire right, title and interest in the above-identified application, hereby declares that:

Every error in U.S. Patent No. 5,818,860, which is the patent that was corrected in the present reissue application, and every error that is not covered by the prior declaration submitted in this application, arose without any deceptive intention on the part of the applicant.

Ownership is in the assignee by virtue of an assignment from Dmitri Zalmanovich Garbuzov, Joseph Hy Abeles, and John Charles Connolly to DAVID SARNOFF RESEARCH CENTER, INC. recorded at Reel 008348, Frame 0547; a merger from DAVID SARNOFF RESEARCH CENTER, INC. to SARNOFF CORPORATION recorded at Reel 009912, Frame 0460, an assignment from SARNOFF CORPORATION to PRINCETON LIGHTWAVE, INC., recorded at Reel 012211, Frame 0112; and an assignment from PRINCETON LIGHTWAVE, INC. to TRUMPF PHOTONICS, INC. recorded at Reel 013515, Frame 0533 (copies enclosed). The documents evidencing ownership have been reviewed and to the best of the assignee's knowledge and belief, title is in the assignee.

The assignee believes the original patent to be partially inoperative or invalid by reason of the patentee claiming more than he had a right to claim in the patent. In particular, independent claim 1 of the original patent has an error because this claim does not specify that the waveguide region "is of a thickness of at least 500 nanometers" and that the waveguide region "has a doping level of no greater than about  $5 \times 10^{16}/\text{cm}^3$ ." Independent claim 12 of the original patent has an error because this claim does not specify that the waveguide region "is of a

Applicant : Garbuzov et al.  
Serial No. : 10/778,019  
Filed : February 13, 2004  
Page : 2 of 2

Attorney's Docket No.: 14564-0006002 / 18.00262;  
DS08067

thickness of at least 500 nanometers" and that the waveguide region "has a doping level of not greater than about  $5 \times 10^{16}/\text{cm}^3$ ."

The amendments to claims 1 and 12 address this error by adding the language shown above.

I, the assignee, submit that the amendments to claims 1 and 12 are narrowing because new features have been added to claims 1 and 12. Additionally, new independent claims 20, 38, 41, 42, 44, 46-49, 53, 55, 56, 67, 79, 89, 97, and 104 are believed to be more narrow than independent claims 1 and 12 of the original patent. Accordingly, because the present reissue is understood to not be a broadening reissue, the assignee may sign this supplemental declaration. See MPEP §1414.01(III).

Please direct all communications regarding the application to the attorney at the address and telephone numbers indicated below.

J. Peter Fasse  
Fish & Richardson P.C.  
225 Franklin Street  
Boston, MA 02110-2804  
Telephone: 617 542-5070  
Facsimile: 617 542-8906

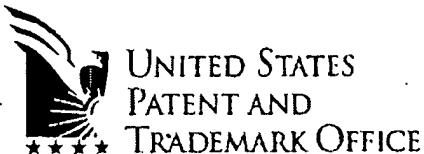
I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Signature: 

Typed Name: Friedhelm Dorsch

Title: Managing Director - Laser Diodes

Assignee: Trumpf Photonics, Inc.



APRIL 29, 2003

FISH & RICHARDSON P.C.  
JAMES W. BABINEAU  
225 FRANKLIN STREET  
BOSTON, MA 02110-2804

PTAS

**RECEIVED**

**CORRECTED  
NOTICE**

14564/00100  
JPF  
JWB  
006001

Under Secretary of Commerce For Intellectual Property and  
Director of the United States Patent and Trademark Office  
Washington, DC 20231  
www.uspto.gov

MAY 05 2003

**FISH & RICHARDSON, P.C.  
BOSTON OFFICE**

UNITED STATES PATENT AND TRADEMARK OFFICE  
NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT DIVISION OF  
THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE MICROFILM COPY IS  
AVAILABLE AT THE ASSIGNMENT SEARCH ROOM ON THE REEL AND FRAME NUMBER  
REFERENCED BELOW.

PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE  
INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA  
PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD  
FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY  
CONTACT THE EMPLOYEE WHOSE NAME APPEARS ON THIS NOTICE AT 703-308-9723.  
PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE,  
ASSIGNMENT DIVISION, BOX ASSIGNMENTS, CG-4, 1213 JEFFERSON DAVIS HWY,  
SUITE 320, WASHINGTON, D.C. 20231.

RECORDATION DATE: 11/20/2002

REEL/FRAME: 013515/0533  
NUMBER OF PAGES: 12

BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).

ASSIGNOR:

PRINCETON LIGHTWAVE, INC.

DOC DATE: 07/18/2002

ASSIGNEE:

TRUMPF PHOTONICS, INC.  
2601 U.S. RTE. 130 S  
CRANBURY, NEW JERSEY 08512

SERIAL NUMBER: 60133393  
PATENT NUMBER:

FILING DATE: 05/10/1999  
ISSUE DATE:

SERIAL NUMBER: 09468396  
PATENT NUMBER: 6556611

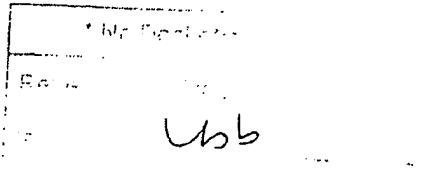
FILING DATE: 12/20/1999  
ISSUE DATE: 04/29/2003

SERIAL NUMBER: 09546086  
PATENT NUMBER: 6459715

FILING DATE: 04/10/2000  
ISSUE DATE: 10/01/2002

SERIAL NUMBER: 60089454  
PATENT NUMBER:

FILING DATE: 06/16/1998  
ISSUE DATE:



013515/0533 PAGE 2

SERIAL NUMBER: 60132791	FILING DATE: 05/06/1999
PATENT NUMBER:	ISSUE DATE:
SERIAL NUMBER: 09566276	FILING DATE: 05/05/2000
PATENT NUMBER:	ISSUE DATE:
SERIAL NUMBER: 60164864	FILING DATE: 11/12/1999
PATENT NUMBER:	ISSUE DATE:
SERIAL NUMBER: 09710362	FILING DATE: 11/10/2000
PATENT NUMBER:	ISSUE DATE:
SERIAL NUMBER: 60129810	FILING DATE: 04/16/1999
PATENT NUMBER:	ISSUE DATE:
SERIAL NUMBER: 60161213	FILING DATE: 10/22/1999
PATENT NUMBER:	ISSUE DATE:
SERIAL NUMBER: 09571970	FILING DATE: 05/16/2000
PATENT NUMBER:	ISSUE DATE:
SERIAL NUMBER: 06176909	FILING DATE: 08/11/1980
PATENT NUMBER: 4394938	ISSUE DATE: 07/26/1983
SERIAL NUMBER: 09553551	FILING DATE: 04/20/2000
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SERIAL NUMBER: 60176913	FILING DATE: 01/20/2000
PATENT NUMBER:	ISSUE DATE:
SERIAL NUMBER: 09585032	FILING DATE: 06/01/2000
PATENT NUMBER:	ISSUE DATE:
SERIAL NUMBER: 60176915	FILING DATE: 01/20/2000
PATENT NUMBER:	ISSUE DATE:
SERIAL NUMBER: 60185133	FILING DATE: 02/25/2000
PATENT NUMBER:	ISSUE DATE:
SERIAL NUMBER:	FILING DATE:
PATENT NUMBER:	ISSUE DATE:
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SERIAL NUMBER:	FILING DATE:
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PCT NUMBER: US0012600	
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PCT NUMBER: US0012708	
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PATENT NUMBER:	ISSUE DATE:
PCT NUMBER: US9913568	

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SERIAL NUMBER:  
PATENT NUMBER:  
PCT NUMBER: US0012635

FILING DATE:  
ISSUE DATE:

SERIAL NUMBER:  
PATENT NUMBER:  
PCT NUMBER: US0031048

FILING DATE:  
ISSUE DATE:

SERIAL NUMBER:  
PATENT NUMBER:  
PCT NUMBER: US0010294

FILING DATE:  
ISSUE DATE:

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PCT NUMBER: US0041425

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ISSUE DATE:

SERIAL NUMBER:  
PATENT NUMBER:  
PCT NUMBER: US0041417

FILING DATE:  
ISSUE DATE:

SERIAL NUMBER:  
PATENT NUMBER:  
PCT NUMBER: US0101971

FILING DATE:  
ISSUE DATE:

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PCT NUMBER: US0101970

FILING DATE:  
ISSUE DATE:

SERIAL NUMBER: 10181467  
PATENT NUMBER:  
PCT NUMBER: US0102019

FILING DATE: 11/18/2002  
ISSUE DATE:

SERIAL NUMBER: 10220897  
PATENT NUMBER:  
PCT NUMBER: US0106039

FILING DATE:  
ISSUE DATE:

SERIAL NUMBER: 09571211  
PATENT NUMBER: 6363188

FILING DATE: 05/16/2000  
ISSUE DATE: 03/26/2002

SERIAL NUMBER: 09430643  
PATENT NUMBER: 6301279

FILING DATE: 10/29/1999  
ISSUE DATE: 10/09/2001

SERIAL NUMBER: 09158847  
PATENT NUMBER: 6339606

FILING DATE: 09/23/1998  
ISSUE DATE: 01/15/2002

SERIAL NUMBER: 08946180  
PATENT NUMBER: 6034380

FILING DATE: 10/07/1997  
ISSUE DATE: 03/07/2000

SERIAL NUMBER: 08524956  
PATENT NUMBER: 5619523

FILING DATE: 09/08/1995  
ISSUE DATE: 04/08/1997

SERIAL NUMBER: 08757883  
PATENT NUMBER: 5818860

FILING DATE: 11/27/1996  
ISSUE DATE: 10/06/1998

013515/0533 PAGE 4

SERIAL NUMBER: 07632263  
PATENT NUMBER: 5131001

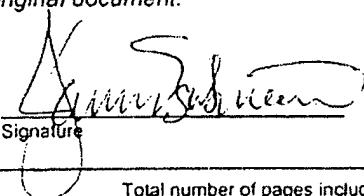
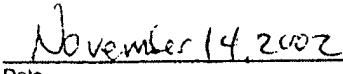
FILING DATE: 12/21/1990  
ISSUE DATE: 07/14/1992

MAURICE CARTER, PARALEGAL  
ASSIGNMENT DIVISION  
OFFICE OF PUBLIC RECORDS

RE:

EET

102294778

Commissioner for Patents: Please record the attached original document(s) or copy(ies).	
1. Name of conveying party(ies): Princeton Lightwave, Inc. Additional name(s) attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 11-20-02	2. Name and address of receiving party(ies): Trumpf Photonics Inc. 2601 U.S. Rte. 130 S Cranbury, NJ 08512
3. Nature of conveyance: <input checked="" type="checkbox"/> Assignment <input type="checkbox"/> Merger <input type="checkbox"/> Security Agreement <input type="checkbox"/> Change of Name <input type="checkbox"/> Other: Execution Date: July 18, 2002	Additional names/addresses attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
4. Application number(s) or patent number(s): If this document is being filed with a new application, the execution date of the application is: A. Patent Application No(s): See Attached List	B: Patent No(s): See Attached List Additional numbers attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
5. Name/address of party to whom correspondence concerning document should be mailed: JAMES W. BABINEAU Fish & Richardson P.C. 225 Franklin Street Boston, Massachusetts 02110-2804	6. Total number of applications/patents involved: 1 7. Total fee (37 CFR §3.41): \$1,480.00 <input checked="" type="checkbox"/> Enclosed <input type="checkbox"/> Authorized to charge Deposit Account.
8. Deposit Account No.: 06-1050 Please apply any additional charges, or any credits, to our Deposit Account No. 06-1050.	
DO NOT USE THIS SPACE	
9. Statement and Signature: <i>To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.</i>	
James W. Babineau Reg. No. 42,276 Name of Person Signing	 Signature
 Date	
Total number of pages including coversheet, attachments and document: 12	

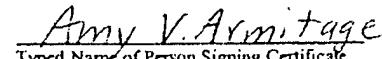
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11/26/2002 JJALLHR2 00000025 07632263  
01 FC:8021 1480.00 0P

CERTIFICATE OF MAILING BY FIRST CLASS MAIL

I hereby certify under 37 CFR §1.8(a) that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage on the date indicated below and is addressed to the Commissioner of Patents, Washington, D.C. 20231.

  
November 14, 2002   
Date of Deposit Signature

  
Amy V. Armitage  
Typed Name of Person Signing Certificate

## CONTINUATION OF ITEM 4

LIST OF PATENTS AND PATENT APPLICATIONS  
ASSIGNED FROM PLI TO TRUMPF PHOTONICS

TITLE	SARNOFF CASE NO.	INVENTOR(S)	APPLICATION NUMBER	FILING DATE	PATENT OR PUBL. NO.	ISSUE DATE	ORIGIN
Monolithic Semiconductor Light Emitter and Amplifier	10579	Carlson	07/632,263	12/21/1990	5,131,001	7/14/1992	US
High Power Semiconductor Laser Diode	11611	Abeles Connolly Garbuzov	08/757,883	11/27/1996	5,818,860	10/6/1998	US
Semiconductor Distributed Feedback Laser Diode	11698	Abeles Connolly Morris	08/524,956	9/8/1996	5,619,523	4/8/1997	US
Semiconductor Distributed Feedback Laser Diode	11698	Abeles Connolly Morris	PCT/US96/13820	9/9/1996	WO 97/09760		WO/ PCT
Electroluminescent Diode with Mode Expander	11961	Alphonse Andrews Meana	08/946,180	10/7/1997	6,034,380	3/7/2000	US
Wide Stripe Distributed Bragg Reflector Lasers with Improved Angular and Spectral Characteristics	12709	Connolly DiMarco Garbuzov Khalfin	60/133,393	5/10/1999			US
Wide Stripe Distributed Bragg Reflector Lasers with Improved Angular and Spectral Characteristics	12709	Connolly DiMarco Garbuzov Khalfin	09/468,396	12/20/1999			WO/ PCT

## CONTINUATION OF ITEM 4

TITLE	SARNOFF CASE NO.	INVENTOR(S)	APPLICATION NUMBER	FILING DATE	PATENT OR PUBL. NO.	ISSUE DATE	ORIGIN
Master Oscillator Granting Coupled Power Amplifier with Angled Amplifier Section	12709A	Connolly DiMarco Garbuzov Khalfin	09/546,086	4/10/2000			US 09/2201 09/2201 09/2201 09/2201
Master Oscillator Granting Coupled Power Amplifier with Angled Amplifier Section	12709A	Connolly DiMarco Garbuzov Khalfin	PCT/US00/12708	5/10/2000	WO 00/72450		WO/ PCT 09/2201 09/2201 09/2201 09/2201
High Power Semiconductor Light Source	12797	Alphonse	60/089,454	6/16/1998			US 09/2201 09/2201 09/2201
High Power Semiconductor Light Source	12797	Alphonse	09/158,847	9/23/1998	6,339,606	1/15/2002	WO/ PCT 09/2201 09/2201 09/2201
Mode Matching in Super Luminescent Diode Cavities	12977	Burstyn Shapiro Riddle Lurie	PCT/US99/13568	6/16/1999	WO 99/66613		US 09/2201 09/2201 09/2201 09/2201
Phase Conjugating Structure for Mode Matching in Super Luminescent Diode Cavities	12977	Burstyn	60/132,791	5/6/1999			US 09/2201 09/2201 09/2201 09/2201
Phase Conjugating Structure for Mode Matching in Super Luminescent Diode Cavities	12977	Burstyn	09/566,276	5/5/2000			US 09/2201 09/2201 09/2201 09/2201
Method for Controlling Current Spreading in Semiconductor Laser Diodes	13206	Connolly DiMarco	60/164,864	11/12/1999			US 09/2201 09/2201 09/2201 09/2201
			09/710,362	11/10/2000			09/2201 09/2201 09/2201 09/2201

## CONTINUATION OF ITEM 4

TITLE	SARNOFF CASE NO.	INVENTOR(S)	APPLICATION NUMBER	FILING DATE	PATENT OR PUBL. NO.	ISSUE DATE	ORIGIN
Control of Current Spreading in Semiconductor Diode Lasers	13206	Connolly DiMarco	PCT/US00/31048	11/10/2000	WO 01/35506		WO/ PCT 01/001 ✓ done done
Semiconductor Diode Lasers with Thermal Sensor Control of the Active Region Temperature	13505	Garbuzov Maiorov Khalfin Connolly	60/129,810 09/430,643	4/16/1999 10/29/1999		6,301,279 10/9/2001	US 01/2001 ✓
Semiconductor Diode Lasers with Thermal Sensor Control of the Active Region Temperature	13505	Garbuzov Maiorov Khalfin Connolly	PCT/US00/10294	4/17/2000	WO 00/65699		WO/ PCT 01/2001 ✓ done ✓ done
Integrated High Power Semiconductor Laser	13764	Alphonse	60/161,213	10/22/1999			US 01/3001 ✓
Integrated High Power Semiconductor Laser	13764	Alphonse	09/571,970	5/16/2000			US 01/3001 ✓
Mode Expander with Co-Directional Grating	13764A	Alphonse	PCT/US00/41425	10/23/2000	WO 01/39341		WO/ PCT 01/4001 ✓
Mode Expander with Co-Directional Grating	13764A	Alphonse	09/571,211	5/16/2000	6,363,188	3/26/2002	US 01/4001 ✓
Semiconductor Diode Lasers with Improved Beam Divergence	13858	Garbuzov Khalfin Connolly	PCT/US01/01971	10/23/2000 09/553,551	WO 01/29590 4/20/2000		WO/ PCT 01/4001 ✓
Semiconductor Diode Lasers with Improved Beam Divergence	13858	Garbuzov Khalfin Connolly		1/19/2001	WO 01/57974		WO/ PCT 01/5001 ✓

6.

7.

## CONTINUATION OF ITEM 4

TITLE	SARNOFF CASE NO.	INVENTOR(S)	APPLICATION NUMBER	FILING DATE	PATENT OR PUBL. NO.	ISSUE DATE	ORIGIN
High-Power Single Mode Semiconductor Laser Diode	13860	Garbuzov Khalfin	60/176,913 09/585,032	1/20/2000 6/1/2000			US 016,701 ✓ 016,801 ✓
High-Power Single Mode Semiconductor Laser Diode	13860	Garbuzov Khalfin	PCT/US01/01970	1/19/2001	WO 01/57973		WO/ PCT 016,701 ✓
Channclizer Switch; High Power Distributed Feedback Ridge Waveguide Laser; Resonant Enhanced Modulator (REM)	13869; 13870; 13871	Abeles	60/176,915	1/20/2000			US 017,701 ✓
High Power Distributed Feedback Ridge Waveguide Laser	13870	Abeles	PCT/US01/02019	1/22/2001	WO 01/54240		WO/ PCT 017,701 ✓
Double-Pass High Power Superluminescent Diode (SLD) And Optical Amplifier With Mode Stabilization	13922	Abeles	60/185,133	2/25/2000			US 018,701 ✓
Multi-Pass, Arcuate Bent Waveguide, High Power Superluminescent Diode	13922	Abeles	PCT/US01/06039	2/23/2001	WO 01/63331		WO/ PCT 018,701 ✓

EXHIBIT B

ASSIGNMENT

WHEREAS, Princeton Lightwave, Inc. **ASSIGNOR**, a Delaware corporation, is the owner of the entire right, title, and interest in the patents and patent applications listed on Schedule I attached hereto (collectively referred to as the "*Previously Assigned Patents and Patent Applications*"), subject to the May 2000 License Agreement (as defined below);

WHEREAS, The Sarnoff Corporation, a Delaware corporation ("*Sarnoff Delaware*"), and **ASSIGNOR**, pursuant to a TECHNOLOGY AND PATENT LICENSE AGREEMENT executed by Sarnoff New Jersey and **ASSIGNOR** and dated May 5, 2000 and an AMENDMENT TO TECHNOLOGY AND PATENT LICENSE AGREEMENT executed by Sarnoff New Jersey and **ASSIGNOR** and dated July 18, 2002 (collectively the "*May 2000 License Agreement*"), previously entered into assignments of the Previously Assigned Patents and Patent Applications;

WHEREAS, Sarnoff Corporation, a New Jersey corporation ("*Sarnoff New Jersey*"), possessed a legal interest in the Previously Assigned Patents and Patent Applications;

WHEREAS, the parties intend to ensure the proper assignment of the Previously Assigned Patents and Patent Applications such that Trumpf Photonics, Inc., **ASSIGNEE**, a Delaware corporation, may acquire the entire right, title, and interest in, to and under the Previously Assigned Patents and Patent Applications;

WHEREAS, in order to ensure such proper assignment, by separate written agreement Sarnoff New Jersey assigned to **ASSIGNOR** the entire, right, title, and interest in, to and under the Previously Assigned Patents and Patent Applications, subject to the May 2000 License Agreement;

WHEREAS, **ASSIGNEE** is desirous of obtaining the entire right, title and interest in, to and under the Previously Assigned Patents and Patent Applications, subject to the May 2000 License Agreement;

AND WHEREAS, it is desired that the assignment of these Previously Assigned Patents and Patent Applications be made a matter of record in the appropriate domestic and international patent offices;

NOW, THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged, PLI hereby assigns and transfers unto Trumpf and its successors and assigns, the entire right, title and interest in and to the Previously Assigned Patents and Patent Applications (including the inventions disclosed therein and any divisions, continuations, reissues, reexaminations, extensions or foreign counterparts thereof) together with all rights of action and recovery for past infringement thereof, subject to the May 2000 License Agreement;

AND **ASSIGNOR** HEREBY authorizes and requests the Commissioner of Patents and Trademarks of the United States, and any Official of any country or countries foreign to the United States, whose duty it is to issue patents or other evidence or forms of industrial property protection on applications as aforesaid, to issue the same to the said **ASSIGNEE**, its successors, legal representatives and assigns, in accordance with the terms of this instrument.

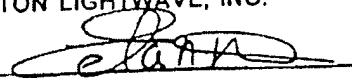
AND ASSIGNOR HEREBY further covenants and agrees that ASSIGNOR shall execute and deliver such documents and take such actions, at ASSIGNEE's expense, as are reasonably necessary or appropriate to effect this assignment of the Previously Assigned Patents and Patent Applications.

[PAGE BELOW INTENTIONALLY LEFT BLANK, SIGNATURE PAGE TO FOLLOW]

IN TESTIMONY WHEREOF, each party has caused its authorized representative to execute this Assignment (Exhibit B) as of July 13, 2002 (the "Effective Date").

PRINCETON LIGHTWAVE, INC.

By



Name Didier Le Lannic

Title President and Chief  
Executive Officer

TRUMPF PHOTONICS, INC.

BY

Name \_\_\_\_\_

Title \_\_\_\_\_

[SIGNATURE PAGE TO EXHIBIT B -ASSIGNMENT AND COVENANT NOT TO SUE  
AGREEMENT]

IN TESTIMONY WHEREOF, each party has caused its authorized representative to execute this Assignment (Exhibit B) as of July 18, 2002 (the "Effective Date").

PRINCETON LIGHTWAVE, INC.

BY \_\_\_\_\_  
Name \_\_\_\_\_  
Title \_\_\_\_\_

TRUMPF PHOTONICS, INC.

BY Peter Leibinger  
Name Peter Leibinger  
Title President

[SIGNATURE PAGE TO EXHIBIT B - ASSIGNMENT AND COVENANT NOT TO SUE AGREEMENT]

**SCHEDULE 1 TO EXHIBIT B OF ASSIGNMENT AND COVENANT NOT TO SUE AGREEMENT**  
**(Previously Assigned Patents and Patent Applications)**

TITLE	INVENTORS	PATENT OR PUB NO.	APPLICATION NO.	FILING DATE	ISSUE DATE	PLI CASE NO.
Monolithic Semiconductor Light Emitter and Amplifier	Carlson	US 5,131,001	07/632,263	12/21/1990	7/14/1992	10579
High Power Semiconductor Laser Diode	Abeles, Connolly, Garbuзов	US 5,818,860	08/757,883	11/27/1996	10/6/1998	11611
		JP 10-303500	9-363805	11/27/1997		
Semiconductor Distributed Feedback Laser Diode	Abeles, Connolly, Morris	US 5,619,523	08/524,956	9/8/1995	4/8/1997	11698
		WO 97/09760	PCT/US96/13820	9/9/1996		
Electroluminescent with Diode Mode Expander	Alphonse, Andrews, Menna	US 6,034,380	08/946,180	10/7/1997	3/7/2000	11961
Electroluminescent with Diode Mode Expander		CA 2245399	2245399	8/20/1998		11961 CA
Semiconductor Diode		EP 908959	98307504.5	9/16/1998		11961 EP
Electroluminescent with Diode Mode Expander		JP 11-214745	10-285363	10/7/1998		11961 JP
Wide Stripe Distributed Bragg Reflector Lasers with Improved Angular and Spectral Characteristics	Connolly, DiMarco, Garbuзов, Khalfin	US Prov	60/133,393	5/10/1999	NA	
		US App	09/468,396	12/20/1999		12709
		AU 7049800	200070498	5/10/2000		
		WO 00/72409	PCT/US00/12600	5/10/2000		12709
Master Oscillator Grating Coupled Power Amplifier with Angled Amplifier Section	Connolly, DiMarco, Garbuзов, Khalfin	US App	09/546,086	4/10/2000	Allowed	12709A
		AU 7049900	200070499	5/10/2000		
		WO 00/72450	PCT/US00/12708	5/10/2000		12709A
High Power Semiconductor Light Source	Alphonse	US Prov	60/089,454	6/16/1998	NA	
		US 6,339,606	09/158,847	9/23/1998	1/15/2002	12797
		EP 1121720	99928706.3	6/16/1999		12797 EP
		JP	2000-555342	6/16/1999		12797 JP
		WO 99/66613	PCT/US99/13568	6/16/1999		12797 PCT

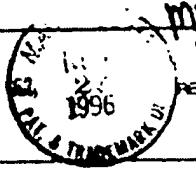
TITLE	INVENTORS	PATENT OR PUB NO.	APPLICATION NO.	FILING DATE	ISSUE DATE	PLI CASE NO.
Mode Matching in Super Luminescent Diode Cavities	Burstyn, Shapiro, Riddle, Lurie	US Prov	60/132,791	5/6/1999	NA	12977
Phase Conjugating Structure for Mode Matching in Super Luminescent Diode Cavities	Burstyn [Shapiro, Riddle, Lurie]	US App	09/566,276	5/5/2000		12977
	Burstyn	AU 4831200	200048312	5/8/2000		
	Burstyn	WO 00/68720	PCT/US00/12635	5/8/2000		12977 PCT
Method for Controlling Current Spreading in Semiconductor Laser Diodes	Connolly, DiMarco	US Prov	60/164,864	11/12/1999	NA	13206
Control of Current Spreading in Semiconductor Laser Diodes		US App	09/710,362	11/10/2000		
		AU 1762601	200117626	11/10/2000		
		WO 01/35506	PCT/US00/31048	11/10/2000		
Semiconductor Diode Lasers with Thermal Sensor Control of the Active Region Temperature	Garbuzov, Maiorov, Khalfin, Connolly	US Prov	60/129810	4/16/99		
		US 6,301,279	09/430,643	10/29/1999	10/9/2001	13505
		AU 6888000	200068880	4/17/2000		
		CA	2370788	4/17/2000		13505 CA
		EP	00957229.8	4/17/2000		13505 EP
		EP 1173907		4/17/2000		
		WO 00/65699	PCT/US00/10294	4/17/2000		13505 PCT
Integrated High Power Semiconductor Laser	Alphonse	US Prov	60/161,213	10/22/1999	NA	13764
		US App	09/571,970	5/16/2000		13764
		AU 4503301	200145033	10/23/2000		
		TW	89122242	10/23/2000		13764 TW
		WO 01/39341	PCT/US00/41425	10/23/2000		13764 PCT
Mode Expander with Co-Directional Grating	Alphonse	US 6,363,188	09/571,211	5/16/2000	3/26/2002	13764A
		AU 2299201	200122992	10/23/2000		
		TW	89122242	10/23/2000		13764A TW
		WO 01/29590	PCT/US00/41417	10/23/2000		13764A PCT
Semiconductor Diode Lasers with Improved Beam	Garbuzov, Khalfin,	US Prov	60/176,909	1/20/2000	NA	
		US App	09/553,551	4/20/2000		13858

TITLE	INVENTORS	PATENT OR PUB NO.	APPLICATION NO.	FILING DATE	ISSUE DATE	PLI CASE NO.
Divergence	Connolly	WO 01/57974	PCT/US01/01971	1/19/2001		13858 PCT
High-Power Single Mode Semiconductor Laser Diode	Garbuzov, Khalfin	US Prov	60/176,913	1/20/2000	NA	13860
		US App	09/585,032	6/1/2000		
		WO 01/57973	PCT/US01/01970	1/19/2001		
Channelizer Switch**	Abeles	US Prov	60/176,915	1/20/2000	NA	13869
High Power Distributed Feedback Ridge Waveguide Laser		AU 4719201	200147192	1/22/2001		13870
Double-Pass High Power Superluminescent Diode (SLD) And Optical Amplifier with Mode Stabilization		WO 01/54240	PCT/US01/02019	1/22/2001		
Multi-Pass, Arcuate Bent Waveguide, High Power Superluminescent Diode	Alphonse	US Prov	60/185,133	2/25/2000	NA	13922
		WO 01/63331	PCT/US01/06039	2/23/2001		13922

\*\*Inventions in this provisional will be assigned only to the extent that Case No. 13870 claims priority of an invention in the provisional.

FORM PTO-1501  
(Rev. 9-93)

OMB No. 0651-0111 (exp. 10-93)



11-27-96  
RECORDATION R

PATENT

U.S. Department of Commerce  
GPO

02-19-1997



100556554

To the Honorable Commissioner of Patents and Trademarks. Please re-

1. Name of conveying party(ies):

Dmitri Zainovich Garbuzov, Joseph Hy Abeta,  
John Charles Connolly

Additional name(s) of conveying party(ies) attached?  yes  no

2. Nature of conveyance:

Assignment  Merger  
 Security Agreement  Change of Name  
 Other

Execution Date: 11/25/96

2. Name of receiving party(ies):

Name: David Samoff Research Center, Inc.  
201 Washington Road  
CN 5300  
Princeton, NJ 08540

Additional name(s) & address(es) attached?  yes  no

4. Application number(s) or patent number(s): 08/957883

If this document is being filed together with a new patent application, the execution date of this application is:

A. Patent Application No. (s):

Serial No. 1811

B. High Power Semiconductor Laser Diode

65149 U.S. PTO

B. Patent No. (s):

02/19/97

Additional number(s) attached?  yes  no

6. Name and address of party to whom correspondence concerning document should be mailed:

Name: William J. Burke  
Law and Patent Operations  
David Samoff Research Center, Inc.  
201 Washington Road  
CN 5300  
Princeton, NJ 08540

6. Total number of applications and patents involved: 1

7. Total fee (37 CFR 3.41) \$ 40

Enclosed

Authorized to be charged to deposit account

8. Deposit Account number: 04-0203

(Attach duplicate copy of this page if paying by deposit account)

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9. Statement and signature:

To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

William J. Burke, Reg. No. 29,138

Name of Person Signing

William J. Burke

Signature

11/19/97

Date

Total number of pages excluding cover sheet, attachments, and document: 2

Mail documents to be recorded with registered cover sheet information to:

Commissioner of Patents and Trademarks  
Box Assignments  
Washington, DC 20231

PATENT  
REEL: 8348 FRAME: 0547

**ASSIGNMENT AND AGREEMENT IN AN APPLICATION  
FOR LETTER PATENT OF THE UNITED STATES OF AMERICA**

I hereby declare that I am the sole inventor (if only one inventor is named below) or a joint inventor (if more than one inventor is named below) of the inventions relating to: **HIGH POWER SEMICONDUCTOR LASER DIODE** described in an application for Letters Patent of the United States of America executed by me on even date with my execution of this Assignment/Agreement.

For valuable consideration received, I hereby sell, assign and transfer to DAVID SARNOFF RESEARCH CENTER, INC. a corporation duly organized and existing under the laws of the State of Delaware, United States of America, its successors, and assigns, my entire right, title and interest, for all countries in and to said inventions, and all the rights and privileges under any and all Letters Patent that may be granted thereto and any divisions, continuations, reissues and extensions thereof.

I agree that, when requested, I will without charge to said corporation but at its expense, sign all papers take all rightful oaths, make all rightful declarations and do all acts which may be necessary, desirable or convenient for securing and maintaining patents or other forms of protection for said inventions in any and all countries and for vesting title thereto in said corporation, its successors, assigns or nominees.

I agree that I will communicate to said corporation or its representatives any facts known to me respecting said inventions and when requested by said corporation and at its expense will testify in any legal proceedings, and generally do everything possible to aid said corporation, its successor, assigns and legal representatives or nominees, to obtain or enforce proper protection for said inventions in any and all countries.

I authorize and empower said corporation, its successors, assigns or nominees, to make application for patent or other form of protection for said inventions in its or their own name, or in my name, in any and all countries and to invoke and claim for any application for patent or other form of protection for said inventions filed by me or them, the benefit of the right of priority provided by the International Convention for the Protection of Industrial Property, as amended, or by any convention which may henceforth be substituted for it, and to invoke and claim such right of priority without further written or oral authorization from me.

I hereby consent that a copy of this assignment shall be deemed a full legal and formal equivalent of any assignment, consent to file or like document which may be required in any country for any purpose and more particularly in proof of the right of the said corporation or its successors, assigns or nominees to apply for patent or other proper protection for said inventions, and to claim the aforesaid benefit of the right of priority provided by the International Convention for the Protection of Industrial Property, as amended, or by any convention which may henceforth be substituted for it.

I covenant with DAVID SARNOFF RESEARCH CENTER, INC. its successors, assigns, legal representatives, and nominees, that to the best of my knowledge the right, title and interest herein conveyed are free and clear of any encumbrance, and that I have full right to convey the same as herein expressed.

Inventor: Dmitri Zamanovich Garbuzov

*Dmitri Zamanovich Garbuzov*

11/25/96

(Signature in Full-No Initials)

Date

Post Office Address: 1-T Hibben Apts., Faculty Road, Princeton, NJ 08540

*Dmitri Zamanovich*

1st Witness: *Dmitri ZAMANOVICH*  
(Type or Print)

*Dmitri Zamanovich*

2nd Witness:

(Type or Print)

*Joseph Hy Ailes*

11/25/96

(Signature in Full-No Initials)

Date

Inventor: Joseph Hy Ailes

*Joseph Hy Ailes*

11/25/96

Post Office Address: 330 Cedar Lane, Highland Park, Middlesex, NJ 08840

*Joseph Hy Ailes*

11/25/96

1st Witness: *Dmitri ZAMANOVICH*  
(Type or Print)

*Joseph Hy Ailes*

2nd Witness:

(Type or Print)

*John Charles Connolly*

11/25/96

(Signature in Full-No Initials)

Date

Inventor: John Charles Connolly

*John Charles Connolly*

11/25/96

Post Office Address: 5 Wright Court, Clarksburg, Monmouth, NJ 08510

*John Charles Connolly*

11/25/96

1st Witness: *Private wood FILLIPTON*  
(Type or Print)

*John Charles Connolly*

2nd Witness:

(Type or Print)

*John Charles Connolly*

11/25/96

(Signature in Full-No Initials)

Date

After this Assignment has been recorded please return to:

AW AND PATENTS, DAVID SARNOFF RESEARCH CENTER, INC. (NS300) PRINCETON, NJ 08543-5300

**PATENT**

REEL: 8348 FRAME: 0548

RECORDED: 11/27/1996

720 4-22-99

FORM PTO-1595 (Modified)  
(Rev. 8-93)  
OMB No. 0651-0011 (exp. 4/94)  
Copyright 1984-97 LegalStar  
PatentREVO2

Tab settings → → →

04-29-1999

Docket No.:

U.S. DEPARTMENT OF COMMERCE  
Patent and Trademark Office

101023199

To the Honorable Commissioner of Patents and Trademarks, attach original documents or copy thereof.

## 1. Name of conveying party(ies):

David Sarnoff Research Center, Inc.  
201 Washington Road, CN 5300  
Princeton, NJ 08543

Additional names(s) of conveying party(ies)  Yes  No

## 3. Nature of conveyance:

Assignment  Merger  
 Security Agreement  Change of Name  
 Other \_\_\_\_\_

Execution Date: 4/4/97

## 2. Name and address of receiving party(ies):

Name: Sarnoff Corporation

Internal Address: \_\_\_\_\_

Street Address: 201 Washington Road, CN 5300City: Princeton State: NJ ZIP: 08543Additional name(s) & address(es) attached?  Yes  No

## 4. Application number(s) or registration numbers(s):

If this document is being filed together with a new application, the execution date of the application is: \_\_\_\_\_

## A. Patent Application No.(s)

## B. Patent No.(s)

See attached  
listsAdditional numbers attached?  Yes  No

## 5. Name and address of party to whom correspondence concerning document should be mailed:

Name: Patent OperationsInternal Address: Sarnoff CorporationStreet Address: 201 Washington Road, CN 5300

04/29/1999 00000126 040203 5579527

01 FC:581 3120.00 GH

City: Princeton State: NJ ZIP: 085436. Total number of applications and patents involved: 787. Total fee (37 CFR 3.41): ..... \$ 3,120.00

Enclosed - Any excess or insufficiency should be credited or debited to deposit account

Authorized to be charged to deposit account

## 8. Deposit account number:

04-0203

DO NOT USE THIS SPACE

## 9. Statement and signature.

To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

John V. Silverio

Name of Person Signing

Signature

John V. Silverio

Date

Total number of pages including cover sheet, attachments, and document: 11

PATENT

REEL: 9912 FRAME: 0460

Patent Number	Issue Date	SAR Number
5,579,527	11/26/96	11134 BA
5,338,879	8/9/94	11162
5,674,698	10/7/97	11170
5,309,063	5/3/94	11186
5,412,741	5/2/95	11225
5,629,988	5/13/97	11258 A
5,473,364	12/5/95	11289
5,664,214	9/2/97	11346 A
5,586,289	12/17/96	11347
5,596,687	1/21/97	11350
5,442,263	8/15/95	11378
5,471,208	11/28/95	11381
5,568,600	10/22/96	11390
5,585,069	12/17/96	11402
5,593,838	1/14/97	11402 A
5,643,738	7/1/97	11402 C
5,681,484	10/28/97	11402 D
5,755,942	5/28/98	11402 EA
5,846,396	12/8/98	11402 G
5,581,720	12/3/96	11407 A
5,500,612	3/19/96	11415
5,600,525	2/4/97	11425
5,615,074	3/25/97	11425 A
5,587,329	12/24/96	11426
5,736,752	4/7/98	11426 A
5,519,242	5/21/96	11457
5,548,135	8/20/96	11469
5,463,732	10/31/95	11476
5,671,377	9/23/97	11485

PATENT  
REEL: 9912 FRAME: 0461

Patent Number	Issue Date	SAR Number
5,483,366	1/9/96	11499
5,488,675	1/30/96	11501
5,633,653	5/27/97	11502
5,649,021	7/15/97	11508
5,644,327	7/1/97	11522
5,497,127	3/5/96	11525
5,739,805	4/14/98	11543
5,565,262	10/15/96	11585
5,653,834	8/5/97	11585 A
5,681,444	10/28/97	11585 B
5,649,032	7/15/97	11588
5,581,629	12/3/96	11603
5,818,860	10/6/98	11611
5,799,037	8/25/98	11616 A
5,588,025	12/24/96	11620
5,581,876	12/10/96	11634
5,719,476	2/17/98	11656
5,514,451	5/7/96	11664
5,675,319	10/7/97	11684
5,619,523	4/8/97	11698
5,632,876	5/27/97	11717
5,600,696	2/4/97	11719
5,790,810	8/4/98	11725
5,764,805	6/9/98	11730
5,603,351	2/18/97	11740
5,757,855	5/26/98	11758
5,635,895	6/3/97	11778
5,724,100	3/3/98	11795
5,619,154	4/8/97	11800

PATENT  
REEL: 9912 FRAME: 0462

Patent Number	Issue Date	SAR Number
5,694,491	12/2/97	11804
5,731,835	3/24/98	11817
5,747,931	5/5/98	11853
5,747,169	5/5/98	11865
5,753,302	5/19/98	11900 A
5,768,447	6/16/98	11913
5,725,808	3/10/98	11932
5,708,550	1/13/98	11939
5,788,814	8/4/98	11945
5,719,966	2/17/98	11957
5,731,839	3/24/98	12006
5,798,788	8/25/98	12035
5,770,370	6/23/98	12038
5,706,002	1/6/98	12039
5,767,746	6/16/98	12062
5,840,256	11/24/98	12098
5,825,896	10/20/98	12125
5,738,430	4/14/98	12138
5,731,743	3/24/98	12247

**PATENT**  
**REEL: 9912 FRAME: 0463**

## Certification of Copy

I certify that the attached copy of the Certificate of Merger of David Sarnoff Research Center, Inc. into Sarnoff Corporation is a true and correct copy of the original.

  
John V. Silverio, Esq.  
Registration No. 34,014

PATENT  
REEL: 9912 FRAME: 0464

MGB/NCP

FILED

404001

## CERTIFICATE OF MERGER

OF

DAVID SARNOFF RESEARCH CENTER, INC.

INTO

THE SARNOFF CORPORATION

APR 4 1997

LONNA R. HOOKE  
Secretary of State

1159644/11596

Pursuant to the provisions of Chapter 10 of the New Jersey Business Corporation Act, the undersigned corporations, DAVID SARNOFF RESEARCH CENTER, INC., a Delaware corporation ("DSRC"), and THE SARNOFF CORPORATION, a New Jersey corporation ("Sarnoff"), adopt the following Certificate of Merger for the purpose of merging DSRC with and into Sarnoff, with Sarnoff as the surviving corporation.

1. The Agreement and Plan of Merger setting forth the terms and conditions of the merger of DSRC into Sarnoff is attached to this Certificate as an exhibit.

2. The Agreement and Plan of Merger was approved by the board of directors of DSRC pursuant to a unanimous written consent of directors dated April 3, 1997. The sole stockholder of DSRC approved the Agreement and Plan of Merger by written consent dated April 3, 1997. There is one (1) share of common stock, without par value, of DSRC issued and outstanding that was entitled to vote on the Agreement and Plan of Merger. One (1) share was voted in favor of the Agreement and Plan of Merger, and zero shares were voted against the Agreement and Plan of Merger.

3. The Agreement and Plan of Merger was approved by the board of directors of Sarnoff pursuant to a unanimous written consent of directors dated April 1, 1997. The sole shareholder of Sarnoff approved the Agreement and Plan of Merger by written consent dated April 1, 1997. There is one (1) share of common stock, without par value, of Sarnoff issued and outstanding that was entitled to vote on the Agreement and Plan of Merger. One (1) share was voted in favor of the Agreement and Plan of Merger, and zero shares were voted against the Agreement and Plan of Merger.

4. Article 1 of the Certificate of Incorporation of Sarnoff, as amended, is amended in its entirety to read as follows:

"Article 1. The name of the Corporation is Sarnoff Corporation."

5. The Agreement and Plan of Merger shall be effective on April 4, 1997 at the close of business.

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PATENT

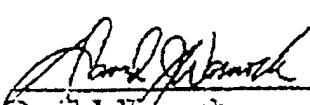
REEL: 9912 FRAME: 0465

6. The laws of the State of Delaware, the jurisdiction of organization of DSRC, permit the merger contemplated by the Agreement and Plan of Merger, and the laws of the State of Delaware, on fulfillment of all filing and recording requirements set forth by the applicable laws of the State of Delaware, will have been complied with.

IN WITNESS WHEREOF, each of the undersigned corporations has caused this Certificate to be signed and sealed as of April 3, 1997.

ATTEST:

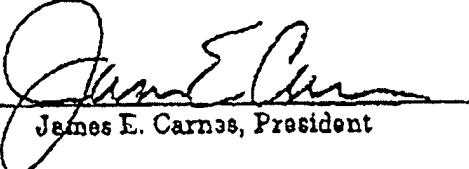
DAVID SARNOFF RESEARCH CENTER, INC.



David J. Warlock

Secretary

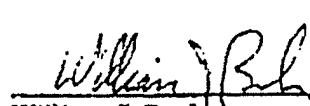
By:



James E. Carnes, President

ATTEST:

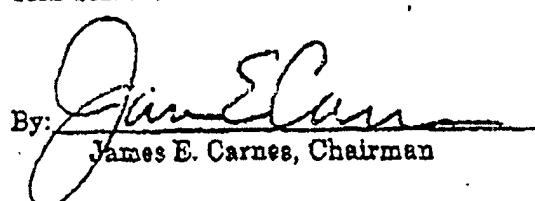
THE SARNOFF CORPORATION



William J. Burke

Secretary

By:



James E. Carnes, Chairman

AGREEMENT AND PLAN OF MERGER

THIS IS AN AGREEMENT AND PLAN OF MERGER dated as of April 3, 1997, 1997, by and between THE SARNOFF CORPORATION, a New Jersey corporation ("Sarnoff") and DAVID SARNOFF RESEARCH CENTER, INC., a Delaware corporation and the sole stockholder of Sarnoff ("DSRC"). Sarnoff and DSRC are sometimes hereinafter together referred to as the "Constituent Corporations."

BACKGROUND

In order to allow DSRC to reincorporate in New Jersey under a new name, DSRC created Sarnoff for the purpose of effecting the merger of DSRC with and into Sarnoff pursuant to the terms and subject to the conditions set forth herein, and the respective Boards of Directors of the Constituent Corporations have duly approved this Agreement and its execution and delivery.

TERMS

The parties hereto agree as follows:

1. Names. The name of the corporation proposing to merge is "David Sarnoff Research Center, Inc.", a Delaware corporation (referred to herein as "DSRC"). The name of the corporation into which DSRC proposes to merge is "The Sarnoff Corporation," a New Jersey corporation (referred to herein as "Sarnoff"), and Sarnoff shall be the surviving corporation (the "Surviving Corporation").

2. Merger of DSRC into Sarnoff. At the Effective Time (as defined in Section 7 below), DSRC will merge with and into Sarnoff in accordance with the provisions of the New Jersey Business Corporation Act and the Delaware General Corporation Law (the "Merger") and the separate existence of DSRC will cease. Sarnoff will change its name and continue its existence under New Jersey law under the name "Sarnoff Corporation."

3. Certificate of Incorporation and Bylaws of Surviving Corporation. The Certificate of Incorporation and Bylaws of Sarnoff in effect at the Effective Time will become the Certificate of Incorporation and Bylaws of the Surviving Corporation without further shareholder action and will thereafter continue to be its Certificate of Incorporation and Bylaws until changed as provided by law; provided, that, at the Effective Time, Article 1 of the Certificate of Incorporation of the Surviving Corporation shall be amended in its entirety to read as follows:

"Article 1. The name of the Corporation is Sarnoff Corporation."

4. Directors and Officers of Surviving Corporation. The directors of DSRC immediately prior to the Effective Time will become the directors of the Surviving Corporation after the Effective Time, to hold office until their respective successors are duly elected and qualified in the manner provided in the Certificate of Incorporation and Bylaws of the Surviving Corporation, or until their prior resignation, removal or death. The officers of DSRC immediately prior to the

Effective Time shall become the officers of the Surviving Corporation after the Effective Time, to hold office at the pleasure of the Board of Directors of the Surviving Corporation.

5. Shares.

5.1. At the Effective Time, the single issued and outstanding share of common stock, without par value, of DSRC will, by virtue of the Merger and without any action on the part of the holder thereof, become and be converted into one validly issued, fully-paid and non-assessable share of common stock, without par value, of the Surviving Corporation. The share of DSRC common stock so converted shall cease to exist as such, and shall exist only as a share of Sarnoff common stock.

5.2. At the Effective Time, the single share of Sarnoff common stock, without par value, issued and outstanding in the name of DSRC, shall by virtue of the Merger and without any action on the part of the holder thereof, be cancelled and retired without conversion or issuance of any shares of stock of the Surviving Corporation with respect thereto, and shall resume the status of an authorized and unissued share of Sarnoff common stock.

5.3. No exchange of certificates representing shares of DSRC stock converted pursuant to Section 5.1 hereof shall be required, and from and after the Effective Time and until certificates representing such DSRC stock are presented for exchange or registration of transfer, all such certificates shall be deemed for all purposes to represent the same number of shares of Sarnoff stock into which they were so converted. After the Effective Time, whenever certificates which formerly represented shares of DSRC stock are presented for exchange or registration of transfer, Sarnoff shall cause to be issued in respect thereof, certificates representing an equal number of shares of Sarnoff stock.

5.4. Conditions to Merger. Consummation of the Merger is subject to the satisfaction of the following conditions on or before the Effective Time:

(a) the Merger shall have received the requisite approval of the shareholders of DSRC and Sarnoff; and

(b) all required consents of third parties with respect to the transactions contemplated by this Agreement are obtained. The conditions set forth in this subparagraph may be waived in the discretion of the Board of Directors of DSRC.

6. Effect of Merger. At the Effective Time of the Merger, the Surviving Corporation shall possess all the rights, privileges, powers and franchises of a public as well as of a private nature, and be subject to all the restrictions, disabilities and duties of each of the Constituent Corporations; and all and singular, the rights, privileges, powers and franchises of each of the Constituent Corporations, and all property, real, personal and mixed, and all debts due to any of the Constituent Corporations on whatever account, as well for stock subscriptions as all other things in action or belonging to each of such corporations shall be vested in the Surviving Corporation; and all property, rights, privileges, powers and

franchises, and all and every other interest shall be thereafter as effectually the property of the Surviving Corporation as they were of the several and respective Constituent Corporations, and the title to any real estate vested by deed or otherwise in any of the Constituent Corporations, shall not revert or be in any way impaired by reason of the Merger; but all rights of creditors and all liens upon any property of any of the Constituent Corporations shall be preserved unimpaired, and all debts, liabilities and duties of the respective Constituent Corporations shall thenceforth attach to the Surviving Corporation, and may be enforced against it to the same extent as if said debts, liabilities and duties had been incurred or contracted by it.

7. Approval, Filing and Effective Time. Subsequent to the execution of this Agreement, DSRC shall submit this Agreement to its shareholders for their approval pursuant to the applicable provisions of the Delaware General Corporation Law and Sarnoff shall submit this Agreement to its shareholders for their approval pursuant to the applicable provisions of the New Jersey Business Corporation Act. After this Agreement has been duly approved in the manner required by law, upon fulfillment or waiver of the other condition specified in Section 5.4 hereof, and provided that this Agreement has not been terminated pursuant to Section 8 hereof, the parties hereto will cause the Merger to be consummated by executing and filing in accordance with the requirements of this Agreement and the respective requirements of the Delaware General Corporation Law and the New Jersey Business Corporation Act, a Certificate of Ownership and Merger with the Secretary of State of the State of Delaware and a Certificate of Merger with the Secretary of State of the State of New Jersey. The Merger will be effective (the "Effective Time") on April 1, 1987 at the close of business.

8. Termination. This Agreement may be terminated and the Merger abandoned by action of the Board of Directors of DSRC at any time before the Effective Time, notwithstanding the satisfaction of the conditions set forth in Section 5.4 hereof.

9. Amendment. This Agreement may be amended in any manner at any time before the Effective Time by the mutual consent of the Boards of Directors of DSRC and Sarnoff.

10. Consent to Service of Process. The Surviving Corporation hereby agrees that it may be served with process in the State of Delaware in any proceeding for enforcement of any obligation of DSRC, as well as for any obligations of the Surviving Corporation arising from the Merger, including the rights of any dissenting stockholders thereof, and hereby irrevocably appoints the Secretary of State of Delaware as its agent to accept service of process in any such suit or other proceeding. The address to which a copy of such process shall be mailed by the Secretary of State of Delaware is 201 Washington Road, Princeton, NJ 08540, Attn: President, unless said surviving corporation shall hereafter designate in writing to such Secretary of State of Delaware a different address for such process, in which case the duplicate copy of such process shall be mailed to the last address so designated.

11. Further Assurances. From time to time, as and when required by the Surviving Corporation or by its successors or assigns, there shall be executed and delivered on behalf of DSRC such deeds and other instruments, and there shall

I, The Secretary of State of the State of  
New Jersey, DO HEREBY CERTIFY that the foregoing is a true copy  
of CERTIFICATE OF *Merger*  
and the endorsements thereon, as the same is taken from and  
compared with the original filed in my office on the *4th*  
day of *April*, A.D. 1997 and now remaining on file  
and of record therein.



IN TESTIMONY WHEREOF, I have  
hereunto set my hand and affixed my  
Official Seal at Trenton, this *18th*  
day of *Dec*, A.D. *1997*

SECRETARY OF STATE

*John R. Harky*

RECORDED: 04/27/1999

PATENT  
REEL: 9912 FRAME: 0470